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# **M&V Plans in Super ESPCs – Perceived Shortcomings**

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**The Department of Energy's Federal Energy Management Program's (FEMP) mission is to facilitate the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship.**



# Key Issues

- **Mis-attribution of IPMVP options**
- **Use of simulations under Option A**
- **Amorphous performance period measurement**
  - particularly in controls ECMs
- **Insufficient use of Options B & C**
- **Out-of-proportion savings claims**
  - relative to total site consumption
- **Goal: tighter, more harmonized reviews**
  - Training to PFs and Lab reviewers



# Mis-attribution of IPMVP options

- **Option B example for solar PV ECM:**
  - “[ESCO] will commission the system and monitor conditions for a two-week period to verify efficiency”
- **Review of IPMVP retrofit isolation options:**
  - A: Key parameter measurement
    - the most critically affected parameter needs to be measured before and after installation
    - EX: power draw of sample of retrofitted lights measured before and after installation (operating hours from measured baseline)
  - B: All parameter measurement – all relevant parameters must be measured
    - EX: PV output metered, adjusted for insolation



# Simulation ... called Option A

- **Example: Controls system upgrade**
  - A “calibrated simulation model will be used as the basis for determining baseline and post-installation energy use”
  - “*Performance Period*: [ESCO] will review semi-annual trend data for a sample group of HVAC systems to verify that the DDC/BAS maintains its operational parameters to preserve savings.”
- **Is this okay?**
  - Does commitment to “review semi- annual trend data” constitute *measurement*?
  - TX A&M response: This is not M&V.
  - PEI (Lia Webster): It’s not specifically prohibited, but to call it Option A the key parameters need to be measured in performance period



# **Amorphous measurement commitments**

- **EX: “[ESCO] will review semi-annual trend data for a sample group of HVAC systems”**
- **EX: “Upon acceptance, the values of the variables used in the calculations will be verified and remain fixed throughout the remainder of the contract term.”**
- **These statements are vague and unhelpful b/c they don’t commit the ESCO to anything**



# Amorphous measurement commitments (cont.)

- **Key question: What would constitute a failure?**
  - or at least precipitate an intervention (whether by the ESCO or the site)
- **In other words:**
  - To what is the ESCO committing?
  - How is the ESCO sharing the risk with the site?



# Insufficient use of Options B & C

- **B & C are “Cadillacs” of M&V**
- **Granted:**
  - B & C are overkill for many ECMs (e.g., lighting w/out controls, 1-for-1 boiler replacements, etc.)
  - B & C put ESCO at greater risk, esp. as term extends and static variables (e.g., loads) change at site
- **However, B & C make sense in many instances**
  - EX: any generation ECM (B)
  - EX: steam decentralization (C)
- **Compromise with C is short-term (1-3 year) application, after which A is used**





# Out-of-proportion savings claims

- **EX: modeled water savings (using usage assumptions) exceeded total site water consumption**
- **Simple remedy: show ECM savings as percentage of total site use**
  - E.g., “This ECM saves 11% of all electricity at site.”
- **This provides simple reality check**



# FEMP M&V Review Strategy

- **LBL will review all approaches (from PAs) and plans (from FPs) in CY '10**
- **Training will be administered to PFs and Lab “Core Team” reps**
  - goal is to both improve and harmonize reviews among different reviewers
- **Some in-depth on-site reviews may be conducted of a sample of projects**